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science for a changing world

Open Data and the USGS Science Data Catalog

PNAMP/CDI DMWG Seminar Series
February 17, 2016

U.S. Department of the Interior
U.S. Geological Survey

Goals

1. Complete the Science Data Lifecycle!!!!
2. What is Open Data?
3. U.S. gov actions, requirements for Open Data
4. Implementation at USGS and beyond
    a. Overview, history of USGS Science Data Catalog (SDC), pathways to data.doi.gov, data.gov, and the Geospatial Platform
    b. Revamped Science Data Catalog, late 2015
5. Future plans and goals related to Open Data

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What is Open Data?

* How does it differ from “regular data”?
  * Open formats
  * Licenses
  * Collaboration
  * Machine interaction
  * Semanticyness
  * Branding

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What is Open Data?

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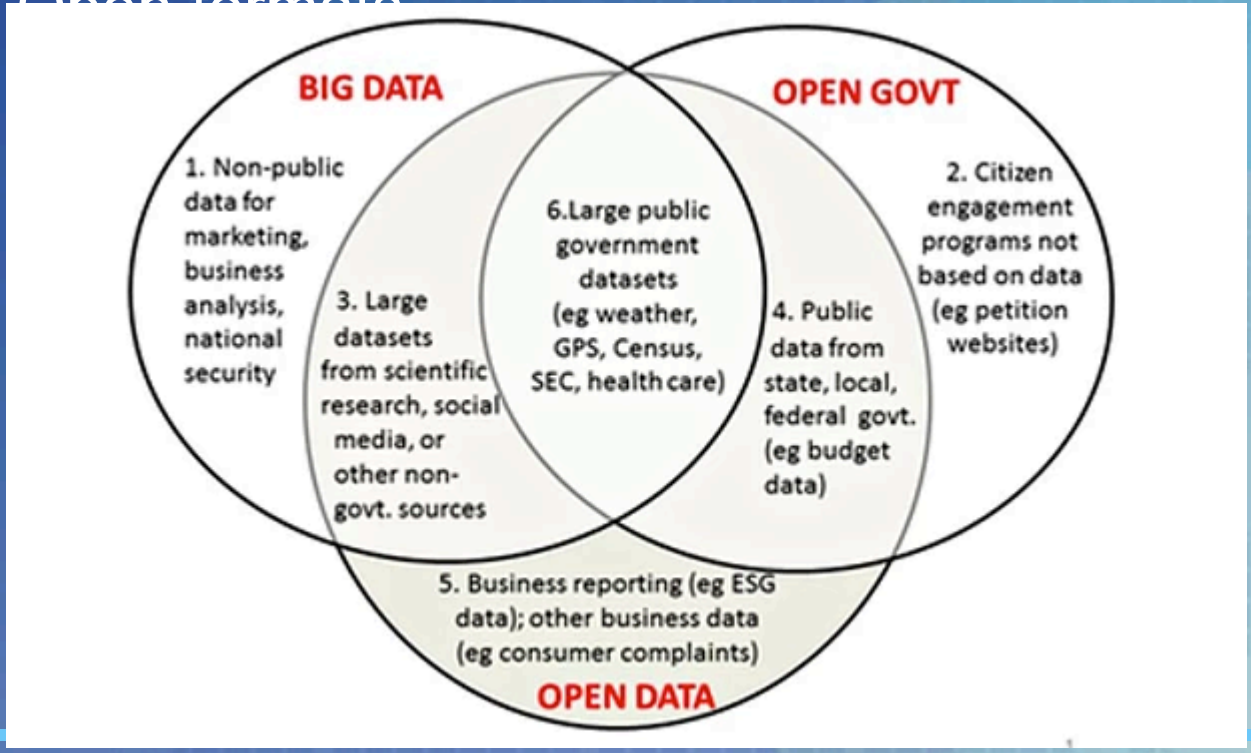

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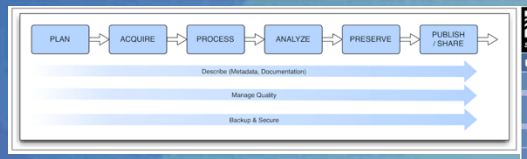
Background & Drivers…

1. On May 9, 2013, the White House released the Executive Order, “Making Open and Machine Readable the New Default for Government.” This Order, built upon an earlier interagency memorandum released by the OSTP, was accompanied by an OMB Policy requiring:
   - Inventory of Data
   - Public Data Listing
     - data.doi.gov
     - data.gov
   - Project Open Data: https://project-open-data.cio.gov/
2. USGS Science Data Management activities
   - Data Management Instructional Memoranda
   - Community for Data Integration
   - Moving toward a “science data life cycle approach” in USGS
   - Implementation of USGS Science Strategy Plans



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Open Government

- The Open Government Directive of December 2009 focuses on ***transparency, participation,*** and ***collab***
- Objectives:
  - Publish government information online
  - Improve the quality of information
  - Education and culture alignment
  - Create a policy framework for Open Government

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The Digital Strategy

- On May 23, 2012 the Administration published "Digital Government: Building a 21st Century Platform to Better Serve the American People"
- Built on four guiding principles:
  - Information-Centric
  - Shared Platform
  - Customer-Centric
  - Security and Privacy

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Digital Gov. Strategy Principles

1. An "***Information-Centric"*** approach—Moves us from managing "documents" to managing discrete pieces of open data and content which can be tagged, shared, secured, mashed up and presented in the way that is most useful for the consumer of that information.
2. A ***"Shared Platform"*** approach—Helps us work together, both within and across agencies, to reduce costs, streamline development, apply consistent standards, and ensure consistency in how we create and deliver information.
3. A ***"Customer-Centric"*** approach—Influences how we create, manage, and present data through websites, mobile applications, raw data sets, and other modes of delivery, and allows customers to shape, share and consume information, whenever and however they want it.
4. A platform of ***"Security and Privacy"***—Ensures this innovation happens in a way that ensures the safe and secure delivery and use of digital services to protect information and privacy.

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Drivers (cont…)

* Open Data Action Plan
* Inclusion in quarterly “Cross Agency Priority” (CAP) goals
* Interagency Working Groups
* Policy Teams
* FOIA Requests
* Lobbying
* Etc….

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Focused Open Data Initiatives

- "Button" projects
  - Green Button--energy usage, http://www.greenbuttondata.org/
  - Blue Button--health records, https://www.healthit.gov/patients-families/your-health-data
- Focused sites:
  - College matching/data: https://collegescorecard.ed.gov/
  - National Climate Assessment: http://www.globalchange.gov/browse/datasets
- Data.gov Communities
- Geospatial Platform Communities
  - National Geospatial Data Assets (NGDA)

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Engaging the Public

- Data Jam
  - A closed-press, day-long ideation event with developers, designers, and subject matter experts focused on one topic and top related open data sets. Several are held in succession, leading up to a datapalooza three months later. Ex: Health Data jam (HHS), 21st Century Jobs Jam (OVP, Commerce, OSTP), Mitigating Campus Sexual Assault (Department of Education, Department of Justice)
- Datapalooza
  - An open press celebration, demo day, and platform to announce government open data releases or improvements. Ex: Safety Datapalooza (DOT, CPSC, FDA.)
- Hackathon
  - An event where developers, designers, and strategists work in teams to solve problems with software and/or hardware and demo the resulting work at the end of the day.Ex: White House "We The People" API Hackathon, The American Art API Hackathon
- "Sunshine Week": http://sunshineweek.rcfp.org/ et al.
- Challenges
  - "App-lifying USGS Data"
  - Climate Resilience Data
  - etc. https://www.data.gov/climate/climate-challenges

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What is the USGS Science Data Catalog (SDC)?

1. Single point for USGS to provide its metadata to data.doi.gov, data.gov, OMB, geoplatform etc.
2. Organizes USGS data
3. Meets Open Data requirements for USGS
4. Provides metadata retrieval, visualization, download, & links back to original providers
5. Focus on scientific data

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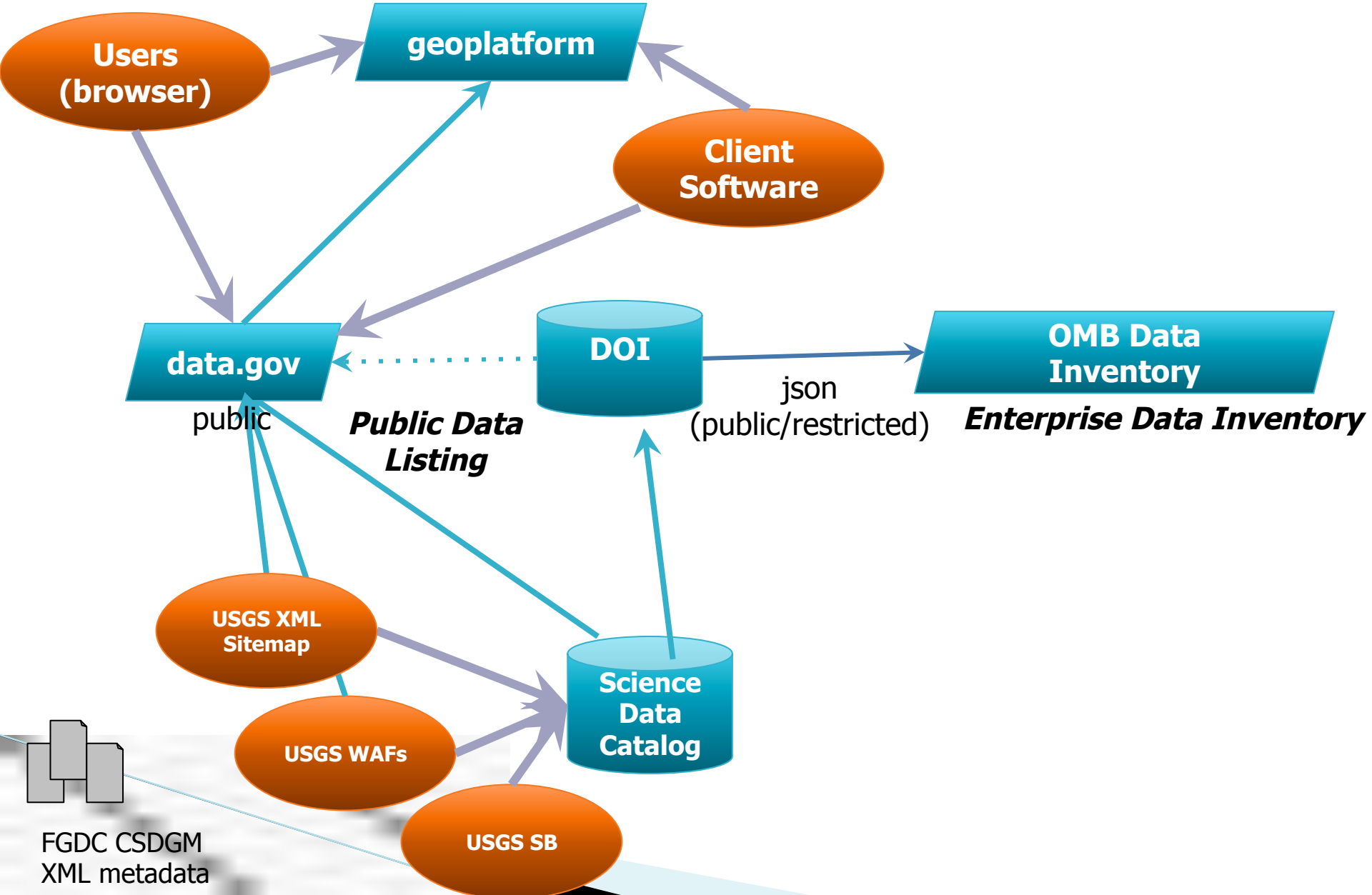
Data Publishing for Open Data and data.gov



2014-2015 SDC Development

- Original version of SDC developed late 2013, launched early 2014
  - ~3500 initial records
- Integrated new data sources from several centers
- Priority datasets:
  - National Geospatial Data Asset (NGDA)
  - Big Earth Data Initiative (BEDI)
  - Data.gov communities

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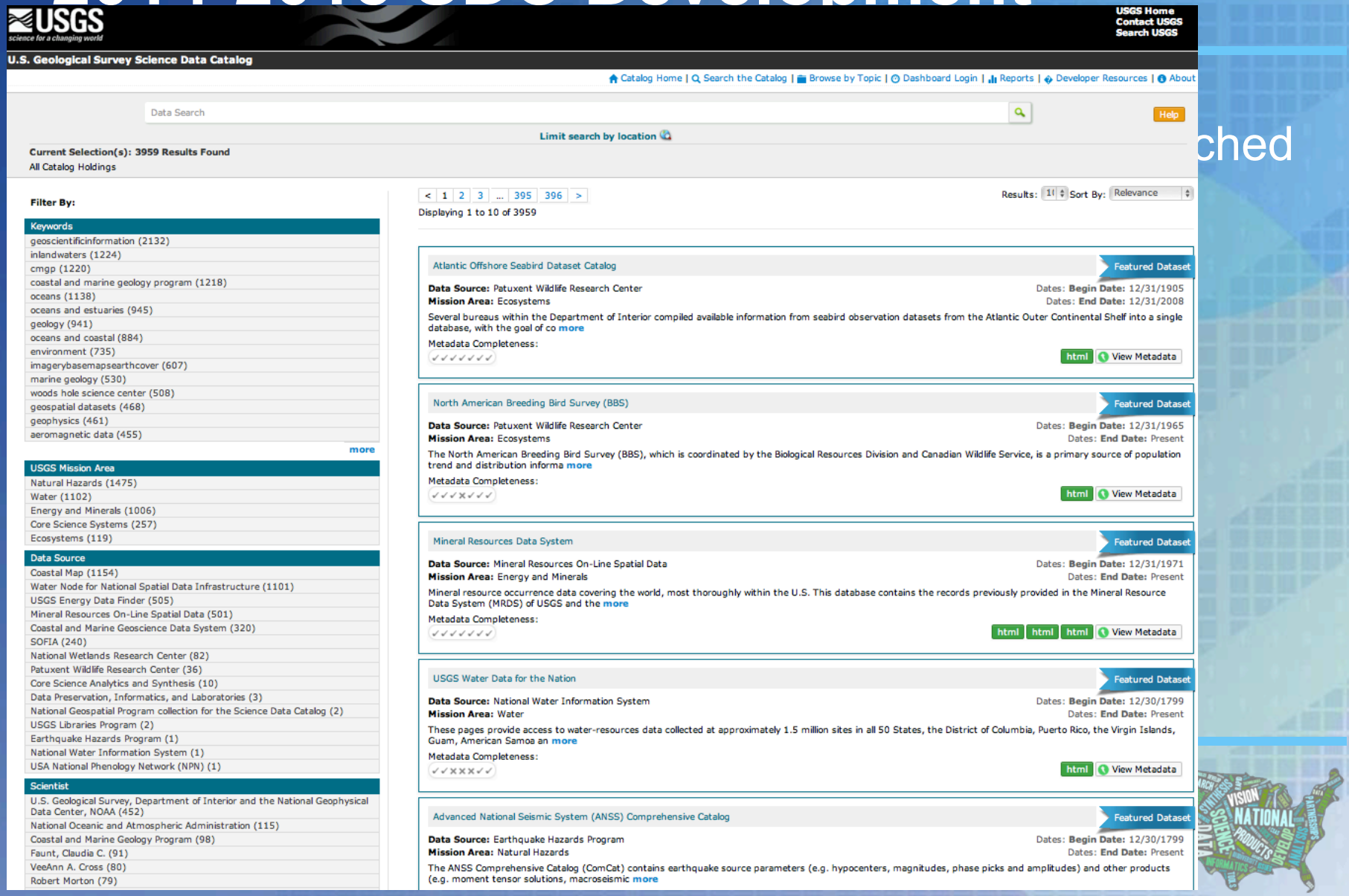
2014-2015 SDC Development



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2015-2016 SDC Redesign

- Goals:
  - Accommodate growth in Catalog (>doubling)
    - USGS Data Management IMs/Policies
    - Browse functionality
    - Improve highlighting of records
    - Incorporate large collections
  - Usability, look and feel
    - Testing at UT usability lab
  - Visualizing data
  - Capturing harvest history and reporting

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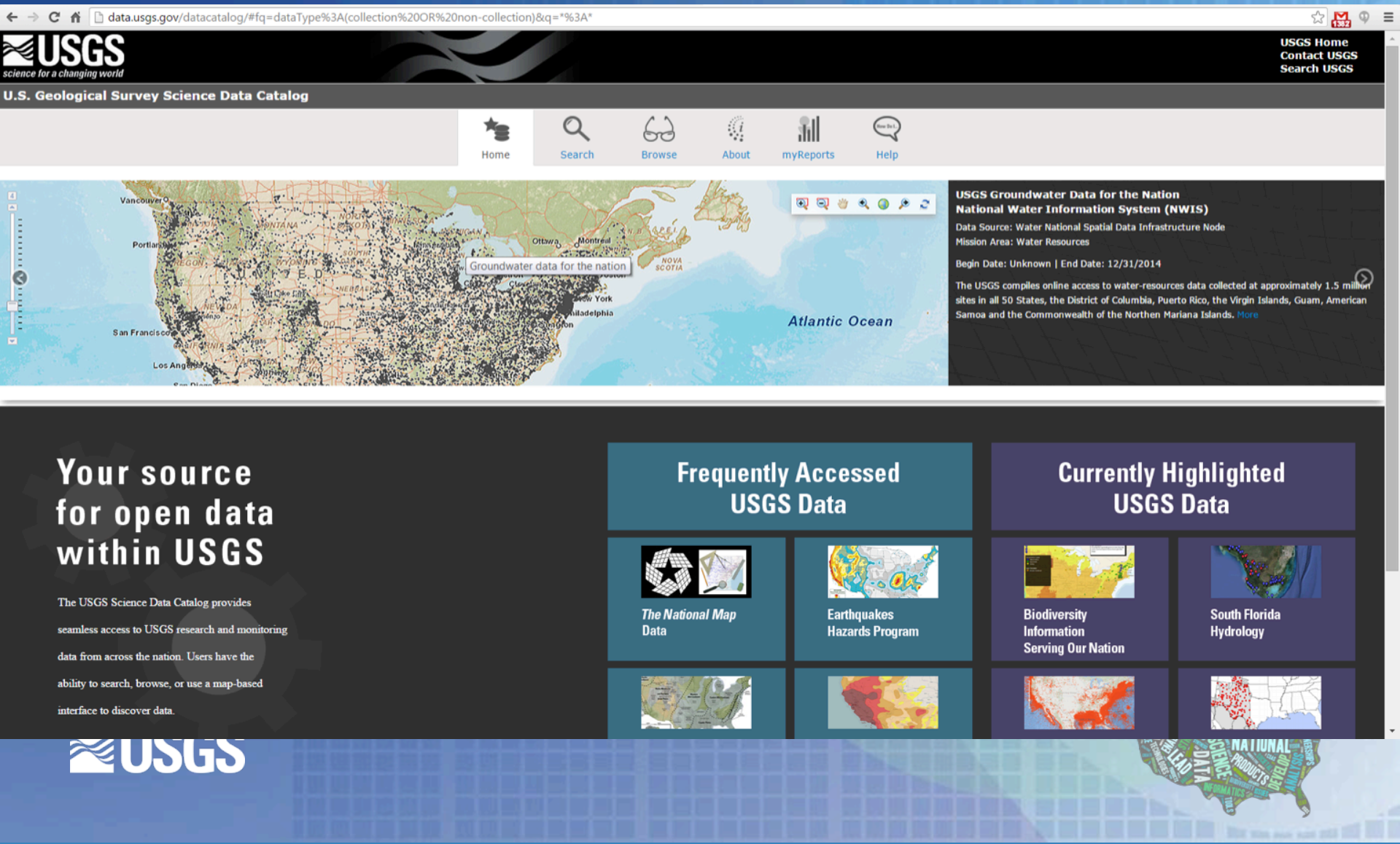
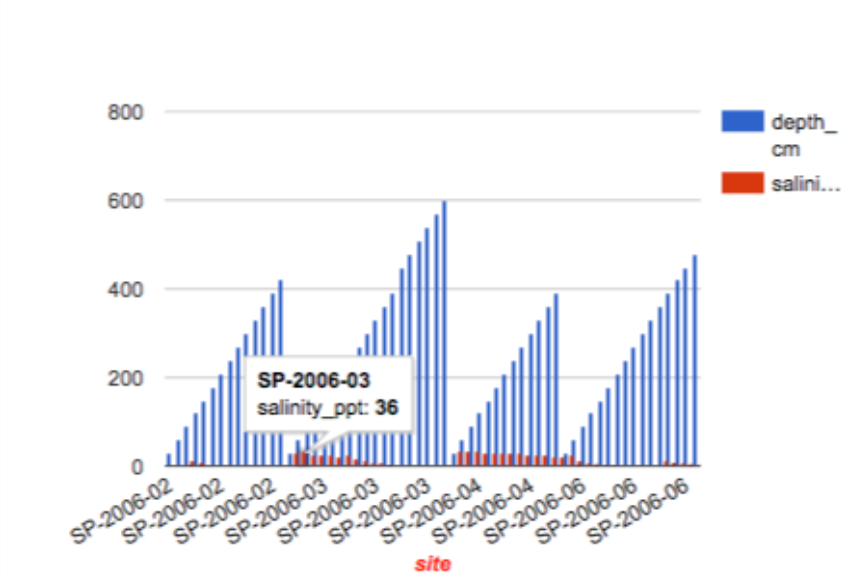
2015-2016 SDC Redesign



Visualization

Comma-delimited Text File of the Porewater Salinity Values of Cores Collected August, 2006 in the Nauset Marsh Area of Cape Cod, Massachusetts

Edit the Chart



Columns (click x to remove columns):

Add a column

x depth_cm

x salinity_ppt

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Open Data Throughout the Government

- https://data.commerce.gov/
- https://data.nasa.gov/, https://open.nasa.gov/open-data/, https://api.nasa.gov/
- https://data.nal.usda.gov/
- ……

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Open Data Throughout the Government

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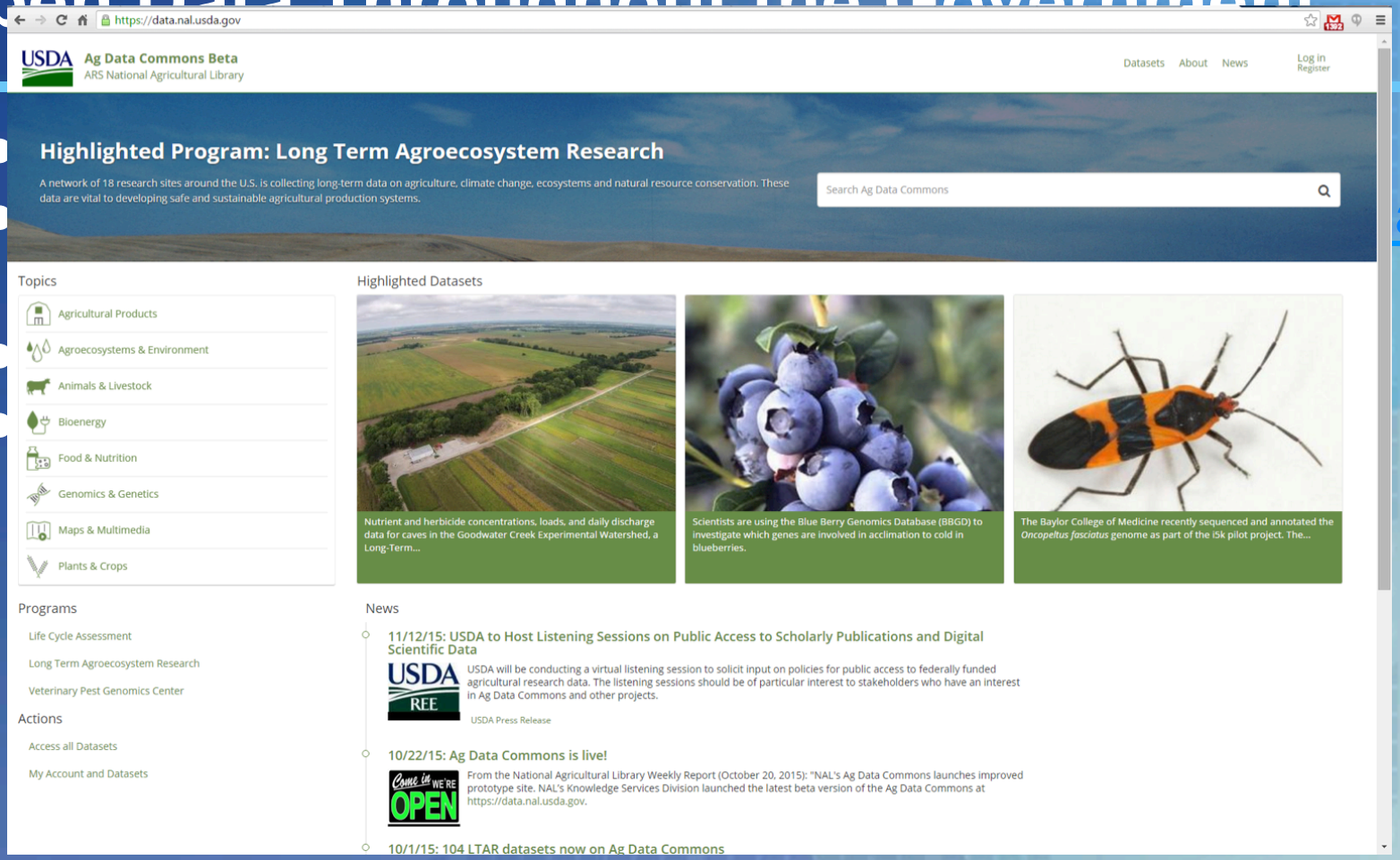

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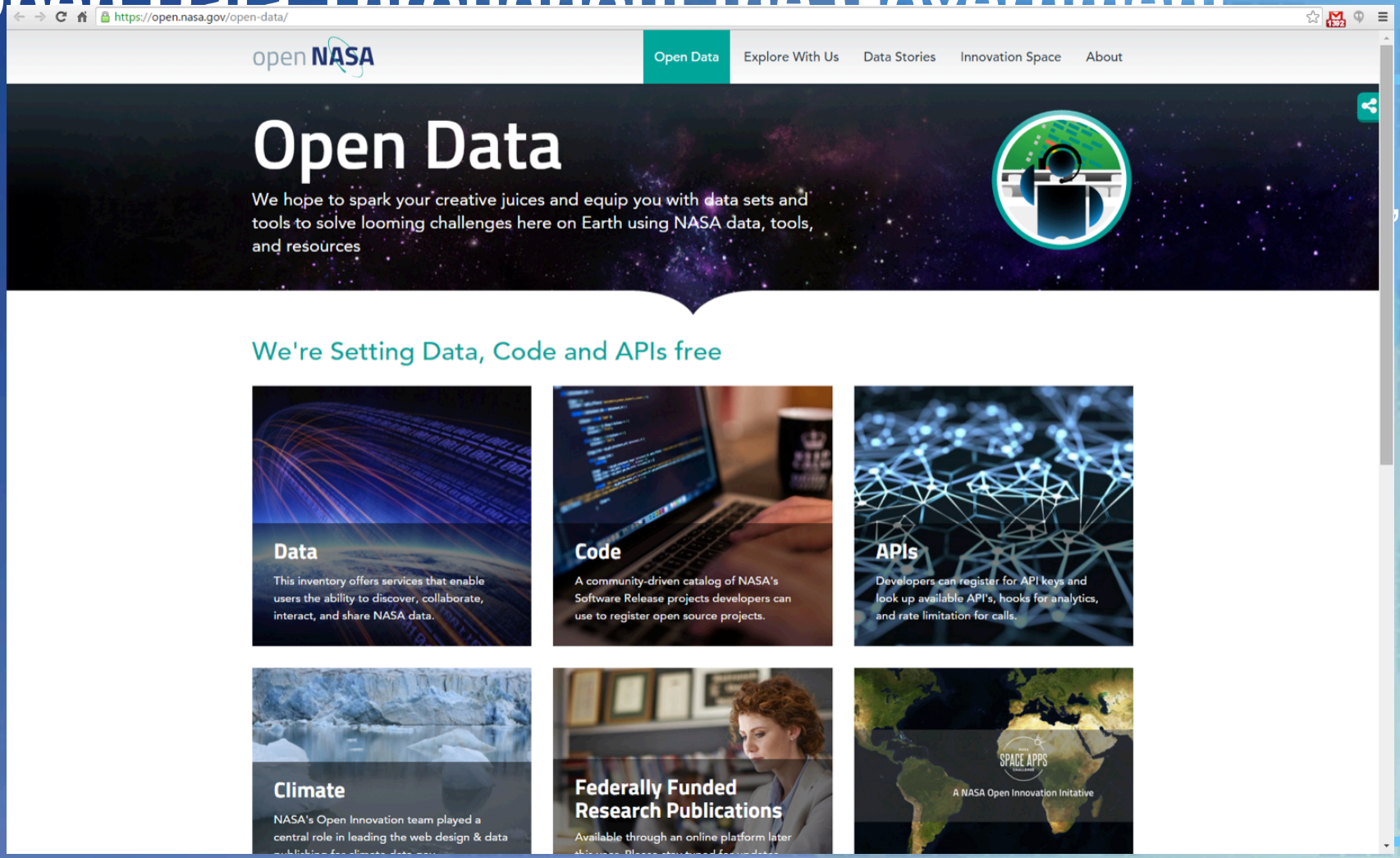
Open Data Throughout the Government



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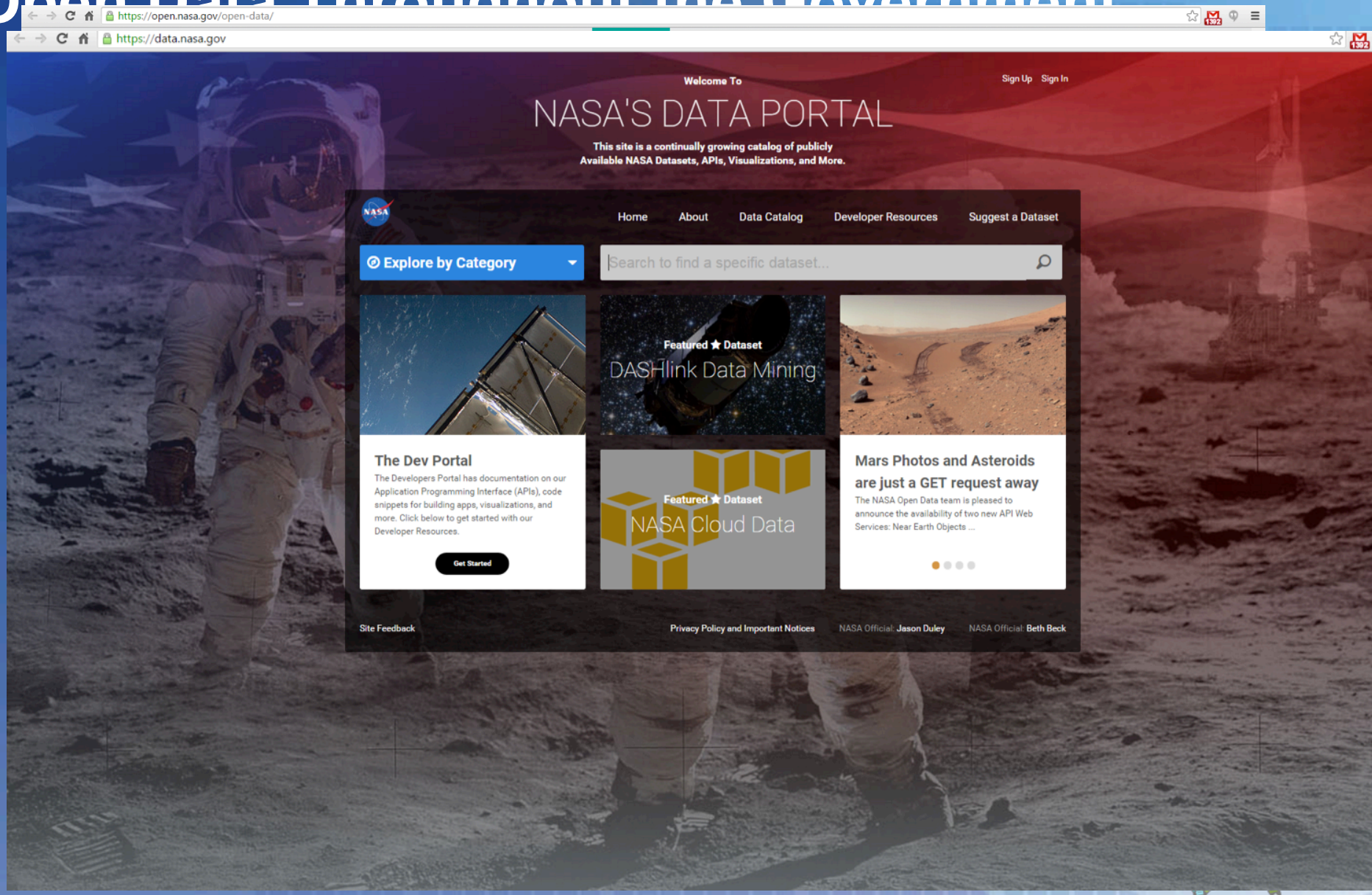
Open Data Throughout the Government



Future of Open Data

- ++ Technology
- + More and more .gov Open Data sites, growing support for concept
- +/- Increasing collaboration w/private industry
- +/- Growing power of outside interest groups, lobbyists
- ------ Funding challenges--unfunded mandates
- -/+ Institutional culture

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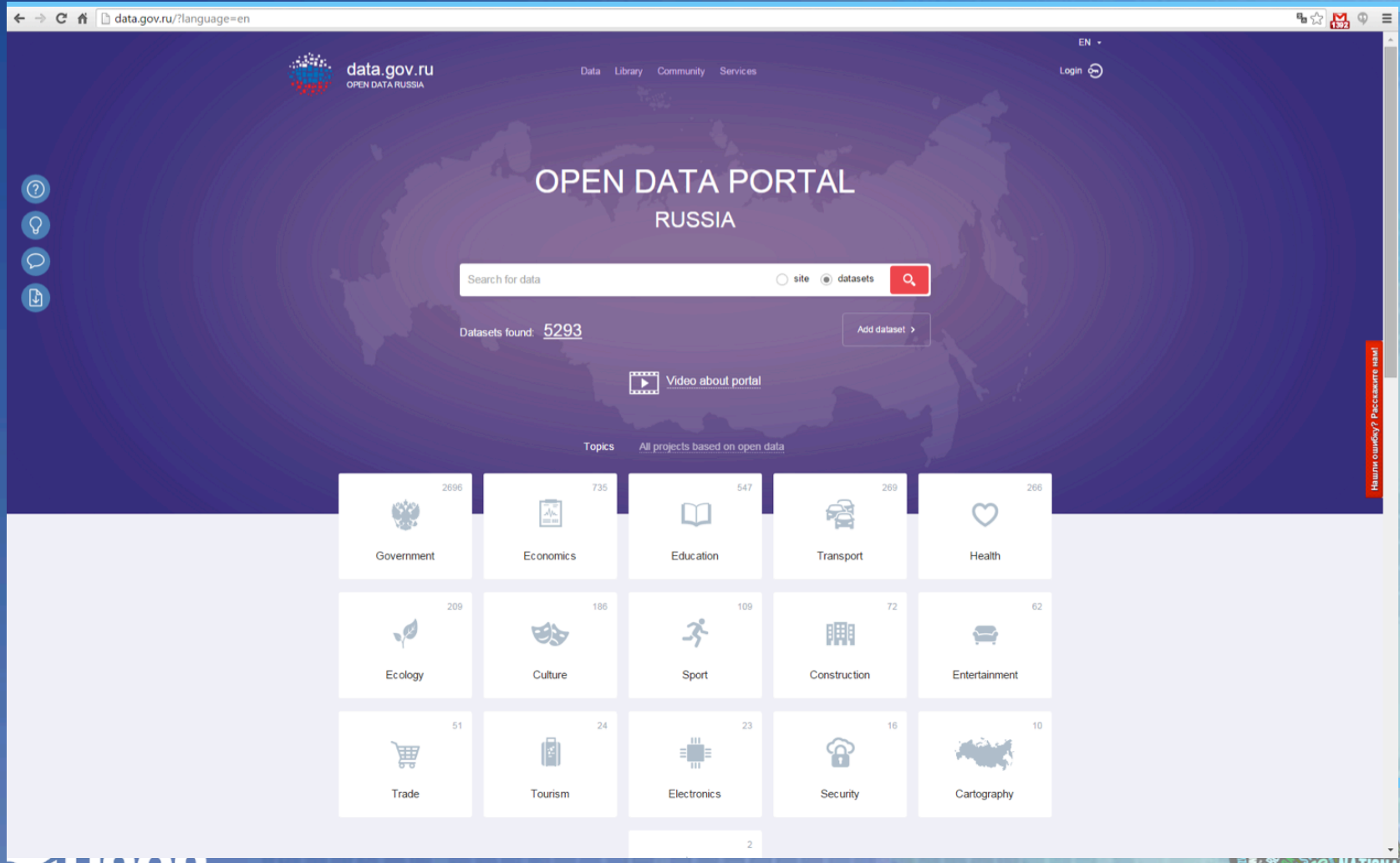
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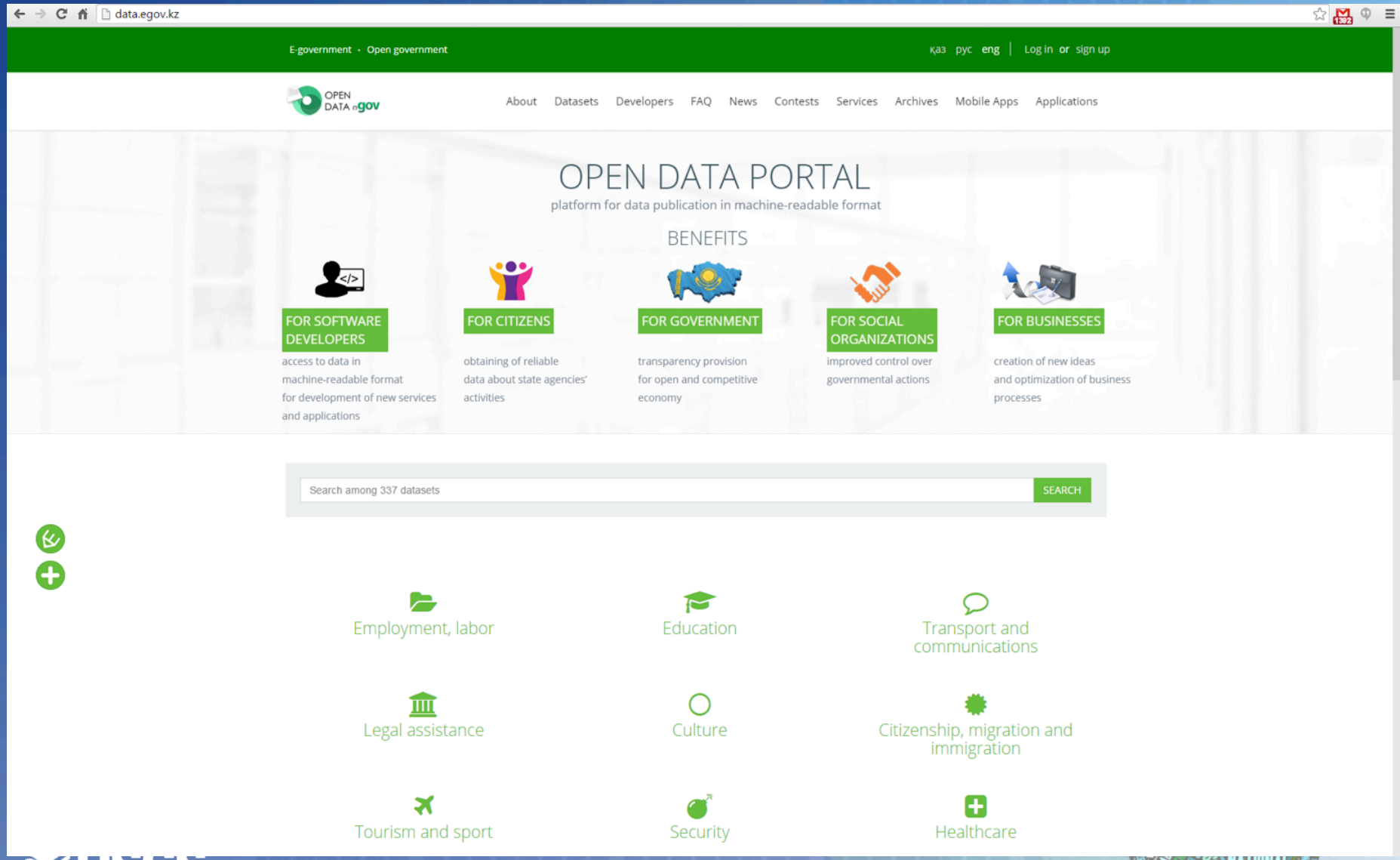
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SEARCH
Employment, labor
Education
Transport and communications
Legal assistance
Culture
Citizenship, migration and immigration
Tourism and sport
Security
Healthcare

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We
data!